



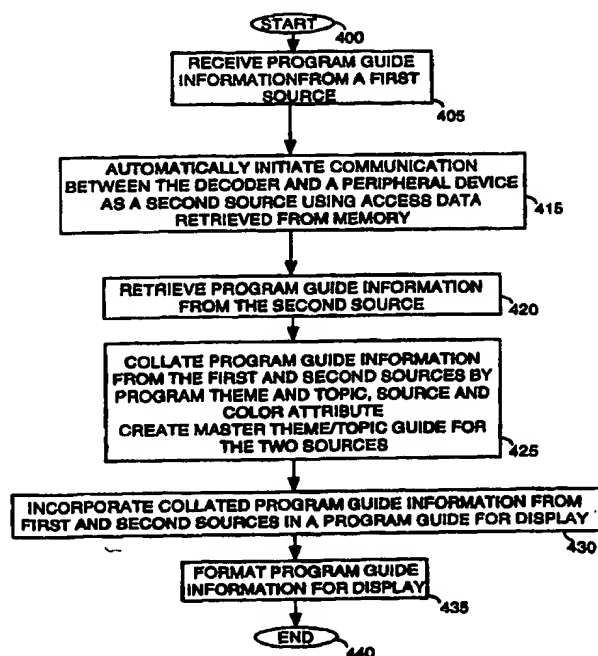
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | | |
|--|--|--|---|
| (51) International Patent Classification ⁶ : H04N 7/173 | | A1 | (11) International Publication Number: WO 98/47283 |
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| (21) International Application Number: PCT/US97/17031 | | (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). | |
| (22) International Filing Date: 23 September 1997 (23.09.97) | | | |
| (30) Priority Data: 60/043,539 14 April 1997 (14.04.97) US | | | |
| (71) Applicant (for all designated States except US): THOMSON CONSUMER ELECTRONICS, INC. [US/US]; 10330 North Meridian Street, Indianapolis, IN 46290-1024 (US). | | | |
| (72) Inventors; and (75) Inventors/Applicants (for US only): WEHMEYER, Keith, Reynolds [US/US]; 6411 Columbia Circle, Fishers, IN 46038 (US). LOGAN, Robert, Joseph [US/US]; 4302 Sagamore Trail, Indianapolis, IN 46220 (US). COMER, Robert, Skipworth [US/US]; 103 East 106th Street, Indianapolis, IN 46280 (US). CROSBY, Sheila, Renee [US/US]; 325 Hampton Court, Crystal Lake, IL 60012 (US). | | Published With international search report. | |
| (74) Agents: TRIPOLI, Joseph, S. et al.; GE AND RCA Licensing Management Operation Inc., P.O. Box 5312, Princeton, NJ 08543 (US). | | | |

(54) Title: SYSTEM FOR COLLATING DATA FROM MULTIPLE SOURCES TO FORM A COMPOSITE PROGRAM GUIDE FOR DISPLAY

(57) Abstract

A video decoder system collates program guide information acquired from a variety of local and remote sources (405, 415, 420). Program guide information is received from a first source and a selectable program guide menu icon is displayed. A category of program guide information items from the first source is collated (425) by a display attribute in response to selection of the menu icon and the collated program guide information items are displayed (430, 435). The display attribute allocated to the category of program guide information items is common to both the category of items and to the menu icon. Codes identifying program categories may be converted to other codes using equivalence mapping information for classifying programs according to a master set of program categories (425). Composite program map information may be formed including new data identifiers allocated to program guide information items for use in retrieving the items from a second source (420).



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that supports complex User interactive tasks whilst providing a simple command interface suitable for the general public. A PC/TV system User interface, for example, should allow a User to view a selected program and permit User operation of functions
5 such as Email, telephone, Internet access, fax and video-phone functions. Such applications require communication between a PC/TV unit and a variety of both remote sources e.g. a satellite service provider, and local sources e.g. a DVD storage device. Further, a PC/TV needs to process and decode data in different
10 data formats from different devices and display received data to the User. These problems are addressed by a system according to the present invention.

Summary of the Invention

15

The inventors have hereby recognized that a Program Guide type of User interface advantageously provides a simple, easy to use interface for User operation of functions such as Email, telephone, Internet access, fax, home control, and video-phone
20 functions. The use of a Program Guide for such functions also advantageously provides a single User interface for User operation of multiple devices and associated functions.

The inventors have further recognized that it is desirable for a video decoder system to be capable of collating
25 program guide information acquired from a variety of local and remote sources. Specifically, the inventors have recognized that the information may be advantageously collated into categories of items for display in accordance with a) allocated display attributes e.g. color, shading, or shape, b) allocated data identifiers e.g.
30 packet identifiers (PIDs), c) hierarchical program content structures e.g. a theme encompassing subtopics (such as movies classified by comedy, horror etc.), d) equivalence mapping information that maps a received set of program categories to a defined superset of categories, and e) characteristics including the
35 source, function and content of a program guide item.

In a method for collating program guide information received from a first source, a selectable program guide menu icon

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/17031

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04N7/173

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04N G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ² | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------------------|--|-----------------------|
| X | W0 97 13368 A (STARSIGHT TELECAST INCORPORATED) 10 April 1997 see the whole document --- | 1-17 |
| Y | US 5 589 892 A (KNEE R. ET AL) 31 December 1996 see column 9, line 50 - column 13, line 48 see column 17, line 25 - column 21, line 35 see column 27, line 21 - column 37, line 51 see column 43, line 53 - line 55 --- | 1-17 |
| Y | W0 96 33572 A (STARSIGHT TELECAST INCORPORATED) 24 October 1996 see page 2, line 9 - page 5, line 19 --- -/-- | 1-17 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

1. Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

2 February 1998

Date of mailing of the international search report

12/02/1998

Name and mailing address of the ISA

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Authorized officer

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/17031

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|--|-----------------------|
| A | WO 96 09721 A (TV GUIDE ON SCREEN) 28 March 1996 see page 7, line 15 - page 12, line 14 --- | 1-17 |
| A | WO 95 33338 A (BELL ATLANTIC NETWORK SERVICES INC.) 7 December 1995 see page 6, line 27 - page 36, line 35 --- | 1-17 |
| A | EP 0 746 119 A (MITSUBISHI DENKI KABUSHIKI KAISHA) 4 December 1996 see column 9, line 7 - line 35 see column 30, line 53 - column 31, line 20 see column 32, line 12 - column 34, line 10 --- | 1-10 |
| P,X | WO 97 28499 A (AWARD SOFTWARE INTERNATIONAL INC.) 7 August 1997 see the whole document --- | 1-17 |
| E | WO 97 41690 A (AWARD SOFTWARE INTERNATIONAL INC.) 6 November 1997 see the whole document ----- | 1-17 |

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/17031

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| WO 9713368 A | 10-04-97 | AU 7387196 A | 28-04-97 |
| US 5589892 A | 31-12-96 | AU 6258596 A | 30-12-96 |
| | | WO 9641478 A | 19-12-96 |
| | | AU 5572996 A | 18-11-96 |
| | | WO 9634491 A | 31-10-96 |
| | | US 5585866 A | 17-12-96 |
| WO 9633572 A | 24-10-96 | US 5550576 A | 27-08-96 |
| | | AU 5443996 A | 07-11-96 |
| | | US 5684525 A | 04-11-97 |
| WO 9609721 A | 28-03-96 | US 5559548 A | 24-09-96 |
| | | AU 3681895 A | 09-04-96 |
| | | CA 2200348 A | 28-03-96 |
| | | EP 0782806 A | 09-07-97 |
| WO 9533338 A | 07-12-95 | US 5635979 A | 03-06-97 |
| | | AU 2657995 A | 21-12-95 |
| | | US 5666293 A | 09-09-97 |
| EP 746119 A | 04-12-96 | JP 9051297 A | 18-02-97 |
| WO 9728499 A | 07-08-97 | NONE | |
| WO 9741690 A | 06-11-97 | NONE | |

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P. ENT COOPERATION TREA

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

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Date of mailing (day/month/year)

14 December 1998 (14.12.98)

International application No.

PCT/US97/17031

Applicant's or agent's file reference

RCA 88321

International filing date (day/month/year)

23 September 1997 (23.09.97)

Priority date (day/month/year)

14 April 1997 (14.04.97)

Applicant

WEHMEYER, Keith, Reynolds et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

06 November 1998 (06.11.98)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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Authorized officer

Ting Zhao

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PATENT COOPERATION TREATY

PCT

REC'D 20 JUL 1999

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|---|---|--|
| Applicant's or agent's file reference RCA 88321 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/US97/17031 | International filing date (day/month/year) 23/09/1997 | Priority date (day/month/year) 14/04/1997 |
| International Patent Classification (IPC) or national classification and IPC H04N7/173 | | |
| Applicant THOMSON CONSUMER ELECTRONICS, INC. et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 8 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|---|--|
| Date of submission of the demand 06/11/1998 | Date of completion of this report 16. 07. 99 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465 | Authorized officer Noll, B Telephone No. (+49-89) 2399 8700  |

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US97/17031

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1,3-29 as originally filed

2,2a as received on 26/04/1999 with letter of 22/04/1999

Claims, No.:

1-20 as originally filed

Drawings, sheets:

1/9-9/9 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☒ paid additional fees.
☐ paid additional fees under protest.

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**INTERNATIONAL-PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US97/17031

- ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
- ☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|------|
| Novelty (N) | Yes: | Claims | 1-20 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-20 |
| Industrial applicability (IA) | Yes: | Claims | 1-20 |
| | No: | Claims | |

2. Citations and explanations

see separate sheet

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US97/17031

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US97/17031

To section IV:

Claims 1 to 9 relate to a method of collating a particular category of program guide information items by a display attribute which is common to the category and the corresponding menu icon. The purpose of this is to display all items relating to the same category in the same manner, eg by the same colour or by one type of icon, See pages 25 to 27 of the description.

Claims 10 to 20 relate to a method of collating program guide information from plural sources. This is done by forming composite program map information in which a data identifier corresponding to the program guide information of a new source is associated with a program already existing in the program guide (claim 10) or by converting id codes according to mapping information and sorting and merging program guide information from the sources according to a master set of categories (claim 17). The object of this method is to avoid conflicts in the program information from different sources. See also page 9 to 11 of the description.

Both groups have in common that claims 1, 10 and 17 are directed to "a method for collating program information" and contain the feature of displaying program guide information. However, the mere reference to collating information is only an object but not a technical feature in the sense of Rule 13.2 PCT. The feature of displaying a program guide or program guide information is known from WO-A-97 13368, see figures 12A and 12B and therefore not suitable to establish a common inventive concept as defined by Rule 13.2 PCT. Therefore, the application does not meet the requirement of Rule 13.1 PCT.

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US97/17031

To section V:

Claims 1-9:

The document WO-A-96 33572 (hereinafter referred to as D2) describes a method of collating program guide information items representing program channels from one source by a common colour in response to a user's request (page 11 lines 17-23). The collated program information items can be displayed in a channel program grid guide (page 10 lines 8-10).

Claim 1 comprises, in addition, the feature of displaying a selectable program guide menu icon and collating the items in response to selection of the menu icon, wherein the display attribute is common to the category and the icon.

Reference is further made to the document US-A-5 589 892 (hereinafter referred to as D3) which likewise describes a method of collating program guide information items according to a user's selection to form a favourite channel list (figure 37; description in column 30, lines 9-67). Each channel list is represented by an individual icon displayed on the screen (corresponding to an icon on the remote control, see column 30 lines 57-65). When the corresponding list is selected the collated items are displayed on the screen wherein the colour of the text can be changed to match the color of the selected favourite channel key (column 30, lines 65-67). Hence the method of mapping display attributes of a selectable icon and the corresponding list is known from D3. The method of claim 1 is therefore not based on an inventive step.

Claim 1 relates to a method of collating a category of program guide information items from a first source by a display attribute in response to selection of a displayed menu icon. The display attribute is allocated to this category and is common to both the category and the selected menu icon.

The alternative c) of claim 2 is known from WO-A-97 13368 which also describes generation of a program guide (hereinafter referred to as D1), and the alternative b) of claim 2 is known from D2, see passages cited above. The features of claims 3 to 5 are known from any of D2 or D3, see passages cited above. The feature of claim 5 is likewise obvious, see figures 14A and 14B and corresponding passages in the description on page 33. Hierarchical collation (claim 6) is addressed in D1, see figures 12A and

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12B. D2 also suggests to receive program guide information from different sources and collating it to form a merged program guide as presently claimed in claim 7. The feature of forming program map information is known from D1, see the various selectable items shown in figures 14A and 14B.

Claims 10-20:

With regard to claim 10 the document D2 describes a method of mixing program information from different sources in order to obtain a merged program guide (see page 4 line 6 to page 5 line 19; page 9 lines 10-15). The scheduled information received is provided with a source identifier. A structured framework is created by coordinator 20 and the received data are saved in that framework. The framework containing the scheduled information from different source hence is composite program map information corresponding to the feature b) of claim 10. The data are saved in appropriate levels of the structure using pointers. It is obvious that the pointers are also for accessing the data saved in the structure. The items from a particular source are displayed within a merged program guide (page 10 lines 13-14).

Claim 10 mentions in feature a) that a new data identifier is allocated to an item from the second source wherein the identifiers of channels in D2 are not altered. The problem solved by this distinguishing feature is to avoid congestion if two channels received from different sources have the same data identifier. This problem is also solved in D2 by allocating an individual pointer to each program item stored in the framework. In a technical sense the pointer used in D2 is nothing else than a new data identifier for each item in the framework. Hence the method of D2 allocates a new data identifier to *all* items from *all* sources. Whether to change the data identifiers of all channels (as in D2) or only a part (as in the present application) is considered as a normal choice of design of a skilled person but is not based on an inventive step.

The feature of claim 11 is expressively addressed in D2, see page 10, lines 25-26. The feature of claim 11 is self-evident for a skilled person. The features of claims 12 to 14 are obvious from D2 or D3 from which it is known to group part of the program items according to different aspects, and to assign one group to a particular key (in D3) or a corresponding icon. Hierarchical sorting (claims 15 and 16) is likewise obvious from D2, see page 10, lines 11-16.

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US97/17031

Claim 17 differs from Claim 10 in that a first code identifying a program category in a first source signal is converted to a second code for allocating a category in a master set of program categories. In D2 a master set of categories is already established as can be seen from the menu shown in figure 38A. It is further known (see column 29 lines 6-15) to provide, a priori, categorical entries in the channel list which represent a master set of categories. Each of the received programs is allocated to one of the master categories. It appears that code conversion according to given mapping information is a common technique in electronic addressing and therefore obvious to a skilled person.

With regard to dependent claims 18-20 it appears that the features therein do not exceed normal knowledge of a skilled person since the information about the master set of categories has to be obtained from somewhere. The different sources given in claims 18-20 would be routinely considered as appropriate by a skilled person.

To section VI:

The document WO-A-97 28499 filed 31.1.97 and published 7.8.97 claims a priority of 2.2.96. Its content is considered as relevant with the present claims. It should be mentioned that its priority and that of the present application have not been checked.

To section VII :

Various vague or ambiguous terms are used in the claims and may be interpreted in a broad manner: "category" may be interpreted as any group of programs which meet an arbitrary condition; "data identifier", "program category" and "equivalence mapping information" are vague. Due to this fact the claims as a whole are not clear, in contrast to the requirement of Article 6 PCT.

Claims 10 and 17 have fragmental character and contain only part of the features of the alleged invention:

Claim 10 does not contain any features clearly resolving contention of program guide information from different sources since it refers only to the second source and does not specify the influence caused by the first source, Claim 17 is silent about what happens to the program guide information to be received from the second source.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|--|
| Applicant's or agent's file reference RCA 88321 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/US 97/ 17031 | International filing date (day/month/year) 23/09/1997 | (Earliest) Priority Date (day/month/year) 14/04/1997 |
| Applicant THOMSON CONSUMER ELECTRONICS, INC. et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).
2. ☐ Unity of invention is lacking (see Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application,
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ Transcribed by this Authority
4. With regard to the title,
 - ☒ the text is approved as submitted by the applicant
 - ☐ the text has been established by this Authority to read as follows:
5. With regard to the abstract,
 - ☒ the text is approved as submitted by the applicant
 - ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
Figure No. 6
 - ☒ as suggested by the applicant.
 - ☐ because the applicant failed to suggest a figure.
 - ☐ because this figure better characterizes the invention.

☐ None of the figures.

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